SEQUENCE LISTING

<110> JAPAN SCIENCE AND TECHNOLOGY CORPORATION

<120> Proteins with functions to regulate cell-migration and cell-death

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<151> 2001-8-27

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Asn Gly His Val Ser Cys Pro Lys Ser Ser Ile Ile Ser Ser Asp Gly
15 20 25

ggt aag ggc ccc tca gaa gat gca aaa aag aac aag gcc aat cgg aag 206
Gly Lys Gly Pro Ser Glu Asp Ala Lys Lys Asn Lys Ala Asn Arg Lys
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gag gag gat gtc atg gct tcc gga act atc aaa agg cac ctc aaa cca 254

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Glu Asp Leu Ile Gln Leu Leu Ser Ile Met Glu Gly Glu Leu Gln Ala
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cga gaa gat gtc atc cac atg ctg agg aca gag aaa acc aag ccc gag   398
Arg Glu Asp Val Ile His Met Leu Arg Thr Glu Lys Thr Lys Pro Glu
         95                 100                 105

gtt ctg gag gca cac tat gga tct gca gaa cct gag aaa gtg ctt cgg   446
Val Leu Glu Ala His Tyr Gly Ser Ala Glu Pro Glu Lys Val Leu Arg
    110                 115                 120

gtc ctg cac cga gat gcc atc ctt gct caa gag aag tcc ata gga gaa   494
Val Leu His Arg Asp Ala Ile Leu Ala Gln Glu Lys Ser Ile Gly Glu
125                 130                 135                 140

gac gtc tat gag aaa cct atc tca gag ctg gac aga ctg gag gaa aag   542
Asp Val Tyr Glu Lys Pro Ile Ser Glu Leu Asp Arg Leu Glu Glu Lys
                145                 150                 155

cag aag gag acg tac cgc cgc atg cta gag cag ctg ctg ctg gct gag   590
Gln Lys Glu Thr Tyr Arg Arg Met Leu Glu Gln Leu Leu Leu Ala Glu
            160                 165                 170

aag tgt cac agg cgc acc gtg tac gag ctg gag aac gag aag cac aag   638
Lys Cys His Arg Arg Thr Val Tyr Glu Leu Glu Asn Glu Lys His Lys
        175                 180                 185

cac act gac tac atg aac aag agc gac gac ttc acc aac ctg ctg gag   686
His Thr Asp Tyr Met Asn Lys Ser Asp Asp Phe Thr Asn Leu Leu Glu
    190                 195                 200

cag gag cga gag agg ttg aaa aag ctc ctt gaa caa gaa aaa gct tac   734
Gln Glu Arg Glu Arg Leu Lys Lys Leu Leu Glu Gln Glu Lys Ala Tyr
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caa gcc cgc aaa gaa aag gaa aac gct aag cgg ctc aac aaa ctt cga   782
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gat gag ctt gtg aag ctc aag tcc ttc gcc ctc atg ttg gtg gac gag   830
Asp Glu Leu Val Lys Leu Lys Ser Phe Ala Leu Met Leu Val Asp Glu
            240                 245                 250

agg cag atg cac atc gag caa ctg ggc ctg cag agt cag aaa gtc cag   878
Arg Gln Met His Ile Glu Gln Leu Gly Leu Gln Ser Gln Lys Val Gln
        255                 260                 265

gac ctc act cag aag ctg agg gag gag gaa gaa aaa ctc aaa gcg gtc   926
Asp Leu Thr Gln Lys Leu Arg Glu Glu Glu Glu Lys Leu Lys Ala Val
    270                 275                 280

act tac aaa tcc aag gaa gac cgc cag aag ctg ctc aag tta gaa gtg   974
Thr Tyr Lys Ser Lys Glu Asp Arg Gln Lys Leu Leu Lys Leu Glu Val
285                 290                 295                 300

gac ttc gaa cac aag gcc tcg agg ttt tcc cag gag cac gaa gag atg   1022
Asp Phe Glu His Lys Ala Ser Arg Phe Ser Gln Glu His Glu Glu Met
                305                 310                 315

aac gcc aaa ttg gcg aat caa gaa tct cac aac cgg caa ctt cga ctc   1070
Asn Ala Lys Leu Ala Asn Gln Glu Ser His Asn Arg Gln Leu Arg Leu
            320                 325                 330

aaa ctg gtt ggc tta tcg caa agg att gag gag ctg gaa gag acc aat   1118
Lys Leu Val Gly Leu Ser Gln Arg Ile Glu Glu Leu Glu Glu Thr Asn
        335                 340                 345

aaa agc ctt cag aag gca gag gaa gag ctc cag gag ctg aga gag aaa   1166
Lys Ser Leu Gln Lys Ala Glu Glu Glu Leu Gln Glu Leu Arg Glu Lys
    350                 355                 360

att gcc aaa ggg gaa tgt gga aac tcc agt ctc atg gcg gaa gtg gag   1214
Ile Ala Lys Gly Glu Cys Gly Asn Ser Ser Leu Met Ala Glu Val Glu
365                 370                 375                 380

agt ctg cgc aag cgc gtg ctt gag atg gag ggc aag gat gaa gag atc   1262
Ser Leu Arg Lys Arg Val Leu Glu Met Glu Gly Lys Asp Glu Glu Ile
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acg aag acc gag gcc cag tgc cgg gag ctg aag aag aag ctc caa gag   1310
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gaa gaa cac cac agc aag gaa ctt aga cta gaa gtg gag aag ctg cag   1358
Glu Glu His His Ser Lys Glu Leu Arg Leu Glu Val Glu Lys Leu Gln
        415                 420                 425

aag agg atg tct gag ctg gag aag ctg gag gaa gcg ttc agc cgg agt   1406
Lys Arg Met Ser Glu Leu Glu Lys Leu Glu Glu Ala Phe Ser Arg Ser
    430                 435                 440

aag tcg gaa tgc acc cag ctc cat ctg aac ctg gag aag gag aag aac   1454
Lys Ser Glu Cys Thr Gln Leu His Leu Asn Leu Glu Lys Glu Lys Asn
445                 450                 455                 460

cta acc aaa gac ctg ctg aac gag ctg gag gtg gtc aag agt cga gtt   1502
Leu Thr Lys Asp Leu Leu Asn Glu Leu Glu Val Val Lys Ser Arg Val
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aaa gaa ctc gaa tgc tcc gag agt aga ctg gag aag gcc gag tta agc   1550
Lys Glu Leu Glu Cys Ser Glu Ser Arg Leu Glu Lys Ala Glu Leu Ser
            480                 485                 490

ctc aaa gat gac ctt aca aag ctg aag tcc ttc act gtg atg ctg gtg   1598
Leu Lys Asp Asp Leu Thr Lys Leu Lys Ser Phe Thr Val Met Leu Val
        495                 500                 505

gat gag agg aaa aat atg atg gag aaa ata aag caa gaa gag agg aaa   1646
Asp Glu Arg Lys Asn Met Met Glu Lys Ile Lys Gln Glu Glu Arg Lys
    510                 515                 520

gtg gat ggg ttg aat aaa aac ttt aag gtg gag cag gga aaa gtc atg   1694
Val Asp Gly Leu Asn Lys Asn Phe Lys Val Glu Gln Gly Lys Val Met
525                 530                 535                 540

gat gtg acg gaa aag cta atc gag gaa agc aag aag ctt tta aaa ctc   1742
Asp Val Thr Glu Lys Leu Ile Glu Glu Ser Lys Lys Leu Leu Lys Leu
                545                 550                 555

aaa tct gaa atg gag gaa aag gag tac agt ctg aca aag gag agg gat   1790
Lys Ser Glu Met Glu Glu Lys Glu Tyr Ser Leu Thr Lys Glu Arg Asp
            560                 565                 570

gag ctg atg ggt aaa ctg agg agc gaa gaa gaa agg tcc tgt gaa ctg   1838
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Glu Leu Met Gly Lys Leu Arg Ser Glu Glu Glu Arg Ser Cys Glu Leu
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agc tgc agt gta gac tta cta aag aag cgg ctt gat ggc ata gag gag   1886
Ser Cys Ser Val Asp Leu Leu Lys Lys Arg Leu Asp Gly Ile Glu Glu
    590                 595                 600

gta gaa agg gaa ata aac cga ggt agg tcg tgc aag ggg tct gag ttc   1934
Val Glu Arg Glu Ile Asn Arg Gly Arg Ser Cys Lys Gly Ser Glu Phe
605                 610                 615                 620

acc tgc ccg gaa gac aat aag atc aga gaa cta acg ctt gaa atc gag   1982
Thr Cys Pro Glu Asp Asn Lys Ile Arg Glu Leu Thr Leu Glu Ile Glu
                625                 630                 635

aga ctg aag aaa cgg ctc cag cag ttg gag gtg gtg gag ggg gac ttg   2030
Arg Leu Lys Lys Arg Leu Gln Gln Leu Glu Val Val Glu Gly Asp Leu
            640                 645                 650

atg aag acc gag gac gaa tat gac cag ttg gag cag aag ttc aga acc   2078
Met Lys Thr Glu Asp Glu Tyr Asp Gln Leu Glu Gln Lys Phe Arg Thr
        655                 660                 665

gag cag gat aag gca aac ttc ctc tcc cag cag ctc gag gaa atc aaa   2126
Glu Gln Asp Lys Ala Asn Phe Leu Ser Gln Gln Leu Glu Glu Ile Lys
    670                 675                 680

cac caa atg gcc aag cac aaa gcc ata gag aaa ggg gag gcc gtg agc   2174
His Gln Met Ala Lys His Lys Ala Ile Glu Lys Gly Glu Ala Val Ser
685                 690                 695                 700

cag gaa gcc gaa ctg cga cac agg ttt cgg ctg gag gag gct aaa agt   2222
Gln Glu Ala Glu Leu Arg His Arg Phe Arg Leu Glu Glu Ala Lys Ser
                705                 710                 715

cgt gat tta cag gcc gag gtg cag gct ctc aag gag aag atc cac gag   2270
Arg Asp Leu Gln Ala Glu Val Gln Ala Leu Lys Glu Lys Ile His Glu
            720                 725                 730

ctg atg aac aag gaa gac cag ctg tct cag ctc caa gtc gac tat tcg   2318
Leu Met Asn Lys Glu Asp Gln Leu Ser Gln Leu Gln Val Asp Tyr Ser
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gtc ctt cag caa aga ttt atg gaa gaa gaa act aag aac aag aac atg   2366
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Val Leu Gln Gln Arg Phe Met Glu Glu Glu Thr Lys Asn Lys Asn Met
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ggg agg gag gtc ctc aat ctg acc aag gag cta gag ctt tcc aag cgc   2414
Gly Arg Glu Val Leu Asn Leu Thr Lys Glu Leu Glu Leu Ser Lys Arg
765                 770                 775                 780

tac agc cga gct ctc agg ccg agt ggg aac ggc cga agg atg gtg gac   2462
Tyr Ser Arg Ala Leu Arg Pro Ser Gly Asn Gly Arg Arg Met Val Asp
                785                 790                 795

gtg cct gtg gcc tcc act ggg gtg cag acc gag gcg gtg tgc ggg gat   2510
Val Pro Val Ala Ser Thr Gly Val Gln Thr Glu Ala Val Cys Gly Asp
            800                 805                 810

gct gcg gag gag gag acc ccg gct gtg ttc att cgc aaa tcc ttc cag   2558
Ala Ala Glu Glu Glu Thr Pro Ala Val Phe Ile Arg Lys Ser Phe Gln
        815                 820                 825

gag gaa aat cac atc atg agt aat ctt cga cag gta ggc ctg aag aaa   2606
Glu Glu Asn His Ile Met Ser Asn Leu Arg Gln Val Gly Leu Lys Lys
    830                 835                 840

ccc atg gaa cgg tcc tcg gtc ctc gac agg tat ccc cca gca gcg aat   2654
Pro Met Glu Arg Ser Ser Val Leu Asp Arg Tyr Pro Pro Ala Ala Asn
845                 850                 855                 860

gag ctc acc atg agg aag tct tgg att cct tgg atg aga aaa aga gaa   2702
Glu Leu Thr Met Arg Lys Ser Trp Ile Pro Trp Met Arg Lys Arg Glu
                865                 870                 875

aac ggt cct tcc act ccg cag gag aaa ggg ccc agg cca aac cag ggt   2750
Asn Gly Pro Ser Thr Pro Gln Glu Lys Gly Pro Arg Pro Asn Gln Gly
            880                 885                 890

gca ggg cac ccc ggg gag ctg gtc cta gca cca aag cag ggc cag ccc   2798
Ala Gly His Pro Gly Glu Leu Val Leu Ala Pro Lys Gln Gly Gln Pro
        895                 900                 905

cta cac atc cgt gtg aca cca gat cat gag aac agc act gcc acc ctg   2846
Leu His Ile Arg Val Thr Pro Asp His Glu Asn Ser Thr Ala Thr Leu
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gag atc aca agc ccc aca tct gaa gag ttt ttc tct agt acc acc gtc   2894
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Glu Ile Thr Ser Pro Thr Ser Glu Glu Phe Phe Ser Ser Thr Thr Val
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att cct acc tta ggc aac cag aaa cca aga ata acc att att cca tca   2942
Ile Pro Thr Leu Gly Asn Gln Lys Pro Arg Ile Thr Ile Ile Pro Ser
                945                 950                 955

ccc aat gtc atg tcg caa aag ccc aaa agt gca gat cct act ctc ggc   2990
Pro Asn Val Met Ser Gln Lys Pro Lys Ser Ala Asp Pro Thr Leu Gly
            960                 965                 970

cca gaa cga gcc atg tcc cct gtc acg att act act att tcc aga gag   3038
Pro Glu Arg Ala Met Ser Pro Val Thr Ile Thr Thr Ile Ser Arg Glu
        975                 980                 985

aag agc ccg gaa ggt gga agg agc gcc ttt gcc gac agg cct gca tcc   3086
Lys Ser Pro Glu Gly Gly Arg Ser Ala Phe Ala Asp Arg Pro Ala Ser
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ccc atc caa atc atg acg gtg tca aca tct gca gct ccc act gaa atc   3134
Pro Ile Gln Ile Met Thr Val Ser Thr Ser Ala Ala Pro Thr Glu Ile
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gct gtc tct cct gaa tct cag gaa gtg cct atg gga agg act atc ctc   3182
Ala Val Ser Pro Glu Ser Gln Glu Val Pro Met Gly Arg Thr Ile Leu
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aaa gtc acc ccg gaa aaa caa act gtt cca gcc ccc gtg cgg aag tac   3230
Lys Val Thr Pro Glu Lys Gln Thr Val Pro Ala Pro Val Arg Lys Tyr
            1040                1045                1050

aac tcc aat gct aat atc atc acc acg gaa gac aat aaa att cac att   3278
Asn Ser Asn Ala Asn Ile Ile Thr Thr Glu Asp Asn Lys Ile His Ile
        1055                1060                1065

cac ctg ggt tct cag ttt aag cga tct cct ggg cct gcc gct gaa ggc   3326
His Leu Gly Ser Gln Phe Lys Arg Ser Pro Gly Pro Ala Ala Glu Gly
    1070                1075                1080

gtg agc cca gtt atc acc gtc cgg cct gtc aac gtg aca gcg gag aag   3374
Val Ser Pro Val Ile Thr Val Arg Pro Val Asn Val Thr Ala Glu Lys
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gag gtt tct aca ggc aca gtc ctt cgc tct ccc agg aac cac ctc tct   3422
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Glu Val Ser Thr Gly Thr Val Leu Arg Ser Pro Arg Asn His Leu Ser
1105 1110 1115

tca aga ccc ggt gct agc aaa gtg acc agc act ata act ata acc ccg 3470
Ser Arg Pro Gly Ala Ser Lys Val Thr Ser Thr Ile Thr Ile Thr Pro
1120 1125 1130

gtc aca acg tca tcc aca cga gga acc caa tca gtg tca gga caa gat 3518
Val Thr Thr Ser Ser Thr Arg Gly Thr Gln Ser Val Ser Gly Gln Asp
1135 1140 1145

ggg tca tct cag cgg cct acc ccc acc cgc att cct atg tca aaa ggt 3566
Gly Ser Ser Gln Arg Pro Thr Pro Thr Arg Ile Pro Met Ser Lys Gly
1150 1155 1160

atg aaa gct gga aag cca gta gtg gca gcc tca gga gca gga aat ctg 3614
Met Lys Ala Gly Lys Pro Val Val Ala Ala Ser Gly Ala Gly Asn Leu
1165 1170 1175 1180

acc aaa ttc cag cct cga gct gag act cag tct atg aaa ata gag ctg 3662
Thr Lys Phe Gln Pro Arg Ala Glu Thr Gln Ser Met Lys Ile Glu Leu
1185 1190 1195

aag aaa tct gca gcc agc agc act gcc tct ctt gga ggg ggg aag ggc 3710
Lys Lys Ser Ala Ala Ser Ser Thr Ala Ser Leu Gly Gly Gly Lys Gly
1200 1205 1210

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ttcctctgtg ccaacccttt ccttgtacta ctaatttaag ttttaaatat cttgtttata 3830

aaataaccat ttaatagcca tgcacccccc tcccattttg tgcatctgtt tcaatgcagg 3890

ggaatagaat taattagcag aatttctgtt tgctgaatgt tctgttgaag atgttggtcc 3950

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Met Ala Ser Gly Thr Ile Lys Arg His Leu Lys Pro Ser Gly Glu Ser
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Glu Lys Lys Thr Lys Lys Ser Val Glu Leu Ser Lys Glu Asp Leu Ile
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Gln Leu Leu Ser Ile Met Glu Gly Glu Leu Gln Ala Arg Glu Asp Val
85 90 95

Ile His Met Leu Arg Thr Glu Lys Thr Lys Pro Glu Val Leu Glu Ala
100 105 110

His Tyr Gly Ser Ala Glu Pro Glu Lys Val Leu Arg Val Leu His Arg
115 120 125

Asp Ala Ile Leu Ala Gln Glu Lys Ser Ile Gly Glu Asp Val Tyr Glu
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Lys Pro Ile Ser Glu Leu Asp Arg Leu Glu Glu Lys Gln Lys Glu Thr
145 150 155 160

Tyr Arg Arg Met Leu Glu Gln Leu Leu Leu Ala Glu Lys Cys His Arg
165 170 175

Arg Thr Val Tyr Glu Leu Glu Asn Glu Lys His Lys His Thr Asp Tyr
180 185 190

Met Asn Lys Ser Asp Asp Phe Thr Asn Leu Leu Glu Gln Glu Arg Glu
195 200 205

Arg Leu Lys Lys Leu Leu Glu Gln Glu Lys Ala Tyr Gln Ala Arg Lys
210 215 220

Glu Lys Glu Asn Ala Lys Arg Leu Asn Lys Leu Arg Asp Glu Leu Val
225 230 235 240

Lys Leu Lys Ser Phe Ala Leu Met Leu Val Asp Glu Arg Gln Met His
245 250 255

Ile Glu Gln Leu Gly Leu Gln Ser Gln Lys Val Gln Asp Leu Thr Gln
260 265 270

Lys Leu Arg Glu Glu Glu Glu Lys Leu Lys Ala Val Thr Tyr Lys Ser
275 280 285

Lys Glu Asp Arg Gln Lys Leu Leu Lys Leu Glu Val Asp Phe Glu His
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Lys Ala Ser Arg Phe Ser Gln Glu His Glu Glu Met Asn Ala Lys Leu
305 310 315 320

Ala Asn Gln Glu Ser His Asn Arg Gln Leu Arg Leu Lys Leu Val Gly
325 330 335

Leu Ser Gln Arg Ile Glu Glu Leu Glu Glu Thr Asn Lys Ser Leu Gln
340 345 350

Lys Ala Glu Glu Glu Leu Gln Glu Leu Arg Glu Lys Ile Ala Lys Gly
355 360 365

Glu Cys Gly Asn Ser Ser Leu Met Ala Glu Val Glu Ser Leu Arg Lys
370 375 380

Arg Val Leu Glu Met Glu Gly Lys Asp Glu Glu Ile Thr Lys Thr Glu
385 390 395 400

Ala Gln Cys Arg Glu Leu Lys Lys Lys Leu Gln Glu Glu Glu His His

405 410 415

Ser Lys Glu Leu Arg Leu Glu Val Glu Lys Leu Gln Lys Arg Met Ser
420 425 430

Glu Leu Glu Lys Leu Glu Glu Ala Phe Ser Arg Ser Lys Ser Glu Cys
435 440 445

Thr Gln Leu His Leu Asn Leu Glu Lys Glu Lys Asn Leu Thr Lys Asp
450 455 460

Leu Leu Asn Glu Leu Glu Val Val Lys Ser Arg Val Lys Glu Leu Glu
465 470 475 480

Cys Ser Glu Ser Arg Leu Glu Lys Ala Glu Leu Ser Leu Lys Asp Asp
485 490 495

Leu Thr Lys Leu Lys Ser Phe Thr Val Met Leu Val Asp Glu Arg Lys
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Asn Met Met Glu Lys Ile Lys Gln Glu Glu Arg Lys Val Asp Gly Leu
515 520 525

Asn Lys Asn Phe Lys Val Glu Gln Gly Lys Val Met Asp Val Thr Glu
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Lys Leu Ile Glu Glu Ser Lys Lys Leu Leu Lys Leu Lys Ser Glu Met
545 550 555 560

Glu Glu Lys Glu Tyr Ser Leu Thr Lys Glu Arg Asp Glu Leu Met Gly
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Lys Leu Arg Ser Glu Glu Glu Arg Ser Cys Glu Leu Ser Cys Ser Val
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Asp Leu Leu Lys Lys Arg Leu Asp Gly Ile Glu Glu Val Glu Arg Glu
595 600 605

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675 680 685

Lys His Lys Ala Ile Glu Lys Gly Glu Ala Val Ser Gln Glu Ala Glu
690 695 700

Leu Arg His Arg Phe Arg Leu Glu Glu Ala Lys Ser Arg Asp Leu Gln
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Ala Glu Val Gln Ala Leu Lys Glu Lys Ile His Glu Leu Met Asn Lys
725 730 735

Glu Asp Gln Leu Ser Gln Leu Gln Val Asp Tyr Ser Val Leu Gln Gln
740 745 750

Arg Phe Met Glu Glu Glu Thr Lys Asn Lys Asn Met Gly Arg Glu Val
755 760 765

Leu Asn Leu Thr Lys Glu Leu Glu Leu Ser Lys Arg Tyr Ser Arg Ala
770 775 780

Leu Arg Pro Ser Gly Asn Gly Arg Arg Met Val Asp Val Pro Val Ala
785 790 795 800

Ser Thr Gly Val Gln Thr Glu Ala Val Cys Gly Asp Ala Ala Glu Glu
805 810 815

Glu Thr Pro Ala Val Phe Ile Arg Lys Ser Phe Gln Glu Glu Asn His
820 825 830

Ile Met Ser Asn Leu Arg Gln Val Gly Leu Lys Lys Pro Met Glu Arg
835 840 845

Ser Ser Val Leu Asp Arg Tyr Pro Pro Ala Ala Asn Glu Leu Thr Met
850 855 860

Arg Lys Ser Trp Ile Pro Trp Met Arg Lys Arg Glu Asn Gly Pro Ser
865 870 875 880

Thr Pro Gln Glu Lys Gly Pro Arg Pro Asn Gln Gly Ala Gly His Pro
885 890 895

Gly Glu Leu Val Leu Ala Pro Lys Gln Gly Gln Pro Leu His Ile Arg
900 905 910

Val Thr Pro Asp His Glu Asn Ser Thr Ala Thr Leu Glu Ile Thr Ser
915 920 925

Pro Thr Ser Glu Glu Phe Phe Ser Ser Thr Thr Val Ile Pro Thr Leu
930 935 940

Gly Asn Gln Lys Pro Arg Ile Thr Ile Ile Pro Ser Pro Asn Val Met
945 950 955 960

Ser Gln Lys Pro Lys Ser Ala Asp Pro Thr Leu Gly Pro Glu Arg Ala
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Met Ser Pro Val Thr Ile Thr Thr Ile Ser Arg Glu Lys Ser Pro Glu
980 985 990

Gly Gly Arg Ser Ala Phe Ala Asp Arg Pro Ala Ser Pro Ile Gln Ile
995 1000 1005

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1010 1015 1020

Glu Ser Gln Glu Val Pro Met Gly Arg Thr Ile Leu Lys Val Thr Pro
1025 1030 1035 1040

Glu Lys Gln Thr Val Pro Ala Pro Val Arg Lys Tyr Asn Ser Asn Ala
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Asn Ile Ile Thr Thr Glu Asp Asn Lys Ile His Ile His Leu Gly Ser
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Gln Phe Lys Arg Ser Pro Gly Pro Ala Ala Glu Gly Val Ser Pro Val
1075 1080 1085

Ile Thr Val Arg Pro Val Asn Val Thr Ala Glu Lys Glu Val Ser Thr
1090 1095 1100

Gly Thr Val Leu Arg Ser Pro Arg Asn His Leu Ser Ser Arg Pro Gly

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Ala Ser Lys Val Thr Ser Thr Ile Thr Ile Thr Pro Val Thr Thr Ser
1125 1130 1135

Ser Thr Arg Gly Thr Gln Ser Val Ser Gly Gln Asp Gly Ser Ser Gln
1140 1145 1150

Arg Pro Thr Pro Thr Arg Ile Pro Met Ser Lys Gly Met Lys Ala Gly
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Lys Pro Val Val Ala Ala Ser Gly Ala Gly Asn Leu Thr Lys Phe Gln
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ggttgaaaaa gctccttgaa caagaaaaag cttaccaagc ccgcaaagaa aaggaaaacg 180

ctaagcggct caacaaactt cgagatgagc ttgtgaagct caagtccttc gccctc atg 239
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Leu Val Asp Glu Arg Gln Met His Ile Glu Gln Leu Gly Leu Gln Ser

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Gln Lys Val Gln Asp Leu Thr Gln Lys Leu Arg Glu Glu Glu Glu Lys
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ctc aaa gcg gtc act tac aaa tcc aag gaa gac cgc cag aag ctg ctc   383
Leu Lys Ala Val Thr Tyr Lys Ser Lys Glu Asp Arg Gln Lys Leu Leu
     35                  40                  45

aag tta gaa gtg gac ttc gaa cac aag gcc tcg agg ttt tcc cag gag   431
Lys Leu Glu Val Asp Phe Glu His Lys Ala Ser Arg Phe Ser Gln Glu
 50                  55                  60                  65

cac gaa gag atg aac gcc aaa ttg gcg aat caa gaa tct cac aac cgg   479
His Glu Glu Met Asn Ala Lys Leu Ala Asn Gln Glu Ser His Asn Arg
                 70                  75                  80

caa ctt cga ctc aaa ctg gtt ggc tta tcg caa agg att gag gag ctg   527
Gln Leu Arg Leu Lys Leu Val Gly Leu Ser Gln Arg Ile Glu Glu Leu
             85                  90                  95

gaa gag acc aat aaa agc ctt cag aag gca gag gaa gag ctc cag gag   575
Glu Glu Thr Asn Lys Ser Leu Gln Lys Ala Glu Glu Glu Leu Gln Glu
        100                 105                 110

ctg aga gag aaa att gcc aaa ggg gaa tgt gga aac tcc agt ctc atg   623
Leu Arg Glu Lys Ile Ala Lys Gly Glu Cys Gly Asn Ser Ser Leu Met
    115                 120                 125

gcg gaa gtg gag agt ctg cgc aag cgc gtg ctt gag atg gag ggc aag   671
Ala Glu Val Glu Ser Leu Arg Lys Arg Val Leu Glu Met Glu Gly Lys
130                 135                 140                 145

gat gaa gag atc acg aag acc gag gcc cag tgc cgg gag ctg aag aag   719
Asp Glu Glu Ile Thr Lys Thr Glu Ala Gln Cys Arg Glu Leu Lys Lys
                150                 155                 160

aag ctc caa gag gaa gaa cac cac agc aag gaa ctt aga cta gaa gtg   767
Lys Leu Gln Glu Glu Glu His His Ser Lys Glu Leu Arg Leu Glu Val
            165                 170                 175

gag aag ctg cag aag agg atg tct gag ctg gag aag ctg gag gaa gcg   815
Glu Lys Leu Gln Lys Arg Met Ser Glu Leu Glu Lys Leu Glu Glu Ala
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        180                 185                 190

ttc agc cgg agt aag tcg gaa tgc acc cag ctc cat ctg aac ctg gag   863
Phe Ser Arg Ser Lys Ser Glu Cys Thr Gln Leu His Leu Asn Leu Glu
    195                 200                 205

aag gag aag aac cta acc aaa gac ctg ctg aac gag ctg gag gtg gtc   911
Lys Glu Lys Asn Leu Thr Lys Asp Leu Leu Asn Glu Leu Glu Val Val
210                 215                 220                 225

aag agt cga gtt aaa gaa ctc gaa tgc tcc gag agt aga ctg gag aag   959
Lys Ser Arg Val Lys Glu Leu Glu Cys Ser Glu Ser Arg Leu Glu Lys
                230                 235                 240

gcc gag tta agc ctc aaa gat gac ctt aca aag ctg aag tcc ttc act  1007
Ala Glu Leu Ser Leu Lys Asp Asp Leu Thr Lys Leu Lys Ser Phe Thr
            245                 250                 255

gtg atg ctg gtg gat gag agg aaa aat atg atg gag aaa ata aag caa  1055
Val Met Leu Val Asp Glu Arg Lys Asn Met Met Glu Lys Ile Lys Gln
        260                 265                 270

gaa gag agg aaa gtg gat ggg ttg aat aaa aac ttt aag gtg gag cag  1103
Glu Glu Arg Lys Val Asp Gly Leu Asn Lys Asn Phe Lys Val Glu Gln
    275                 280                 285

gga aaa gtc atg gat gtg acg gaa aag cta atc gag gaa agc aag aag  1151
Gly Lys Val Met Asp Val Thr Glu Lys Leu Ile Glu Glu Ser Lys Lys
290                 295                 300                 305

ctt tta aaa ctc aaa tct gaa atg gag gaa aag gag tac agt ctg aca  1199
Leu Leu Lys Leu Lys Ser Glu Met Glu Glu Lys Glu Tyr Ser Leu Thr
                310                 315                 320

aag gag agg gat gag ctg atg ggt aaa ctg agg agc gaa gaa gaa agg  1247
Lys Glu Arg Asp Glu Leu Met Gly Lys Leu Arg Ser Glu Glu Glu Arg
            325                 330                 335

tcc tgt gaa ctg agc tgc agt gta gac tta cta aag aag cgg ctt gat  1295
Ser Cys Glu Leu Ser Cys Ser Val Asp Leu Leu Lys Lys Arg Leu Asp
        340                 345                 350

ggc ata gag gag gta gaa agg gaa ata aac cga ggt agg tcg tgc aag  1343
Gly Ile Glu Glu Val Glu Arg Glu Ile Asn Arg Gly Arg Ser Cys Lys
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    355                 360                 365

ggg tct gag ttc acc tgc ccg gaa gac aat aag atc aga gaa cta acg   1391
Gly Ser Glu Phe Thr Cys Pro Glu Asp Asn Lys Ile Arg Glu Leu Thr
370                 375                 380                 385

ctt gaa atc gag aga ctg aag aaa cgg ctc cag cag ttg gag gtg gtg   1439
Leu Glu Ile Glu Arg Leu Lys Lys Arg Leu Gln Gln Leu Glu Val Val
                390                 395                 400

gag ggg gac ttg atg aag acc gag gac gaa tat gac cag ttg gag cag   1487
Glu Gly Asp Leu Met Lys Thr Glu Asp Glu Tyr Asp Gln Leu Glu Gln
            405                 410                 415

aag ttc aga acc gag cag gat aag gca aac ttc ctc tcc cag cag ctc   1535
Lys Phe Arg Thr Glu Gln Asp Lys Ala Asn Phe Leu Ser Gln Gln Leu
        420                 425                 430

gag gaa atc aaa cac caa atg gcc aag cac aaa gcc ata gag aaa ggg   1583
Glu Glu Ile Lys His Gln Met Ala Lys His Lys Ala Ile Glu Lys Gly
    435                 440                 445

gag gcc gtg agc cag gaa gcc gaa ctg cga cac agg ttt cgg ctg gag   1631
Glu Ala Val Ser Gln Glu Ala Glu Leu Arg His Arg Phe Arg Leu Glu
450                 455                 460                 465

gag gct aaa agt cgt gat tta cag gcc gag gtg cag gct ctc aag gag   1679
Glu Ala Lys Ser Arg Asp Leu Gln Ala Glu Val Gln Ala Leu Lys Glu
                470                 475                 480

aag atc cac gag ctg atg aac aag gaa gac cag ctg tct cag ctc caa   1727
Lys Ile His Glu Leu Met Asn Lys Glu Asp Gln Leu Ser Gln Leu Gln
            485                 490                 495

gtc gac tat tcg gtc ctt cag caa aga ttt atg gaa gaa gaa act aag   1775
Val Asp Tyr Ser Val Leu Gln Gln Arg Phe Met Glu Glu Glu Thr Lys
        500                 505                 510

aac aag aac atg ggg agg gag gtc ctc aat ctg acc aag gag cta gag   1823
Asn Lys Asn Met Gly Arg Glu Val Leu Asn Leu Thr Lys Glu Leu Glu
    515                 520                 525

ctt tcc aag cgc tac agc cga gct ctc agg ccg agt ggg aac ggc cga   1871
Leu Ser Lys Arg Tyr Ser Arg Ala Leu Arg Pro Ser Gly Asn Gly Arg
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530                 535                 540                 545

agg atg gtg gac gtg cct gtg gcc tcc act ggg gtg cag acc gag gcg   1919
Arg Met Val Asp Val Pro Val Ala Ser Thr Gly Val Gln Thr Glu Ala
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gtg tgc ggg gat gct gcg gag gag gag acc ccg gct gtg ttc att cgc   1967
Val Cys Gly Asp Ala Ala Glu Glu Glu Thr Pro Ala Val Phe Ile Arg
            565                 570                 575

aaa tcc ttc cag gag gaa aat cac atc atg agt aat ctt cga cag gta   2015
Lys Ser Phe Gln Glu Glu Asn His Ile Met Ser Asn Leu Arg Gln Val
        580                 585                 590

ggc ctg aag aaa ccc atg gaa cgg tcc tcg gtc ctc gac agg tat ccc   2063
Gly Leu Lys Lys Pro Met Glu Arg Ser Ser Val Leu Asp Arg Tyr Pro
    595                 600                 605

cca gca gcg aat gag ctc acc atg agg aag tct tgg att cct tgg atg   2111
Pro Ala Ala Asn Glu Leu Thr Met Arg Lys Ser Trp Ile Pro Trp Met
610                 615                 620                 625

aga aaa aga gaa aac ggt cct tcc act ccg cag gag aaa ggg ccc agg   2159
Arg Lys Arg Glu Asn Gly Pro Ser Thr Pro Gln Glu Lys Gly Pro Arg
                630                 635                 640

cca aac cag ggt gca ggg cac ccc ggg gag ctg gtc cta gca cca aag   2207
Pro Asn Gln Gly Ala Gly His Pro Gly Glu Leu Val Leu Ala Pro Lys
            645                 650                 655

cag ggc cag ccc cta cac atc cgt gtg aca cca gat cat gag aac agc   2255
Gln Gly Gln Pro Leu His Ile Arg Val Thr Pro Asp His Glu Asn Ser
        660                 665                 670

act gcc acc ctg gag atc aca agc ccc aca tct gaa gag ttt ttc tct   2303
Thr Ala Thr Leu Glu Ile Thr Ser Pro Thr Ser Glu Glu Phe Phe Ser
    675                 680                 685

agt acc acc gtc att cct acc tta ggc aac cag aaa cca aga ata acc   2351
Ser Thr Thr Val Ile Pro Thr Leu Gly Asn Gln Lys Pro Arg Ile Thr
690                 695                 700                 705

att att cca tca ccc aat gtc atg tcg caa aag ccc aaa agt gca gat   2399
Ile Ile Pro Ser Pro Asn Val Met Ser Gln Lys Pro Lys Ser Ala Asp
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                    710                 715                 720

cct act ctc ggc cca gaa cga gcc atg tcc cct gtc acg att act act   2447
Pro Thr Leu Gly Pro Glu Arg Ala Met Ser Pro Val Thr Ile Thr Thr
                725                 730                 735

att tcc aga gag aag agc ccg gaa ggt gga agg agc gcc ttt gcc gac   2495
Ile Ser Arg Glu Lys Ser Pro Glu Gly Gly Arg Ser Ala Phe Ala Asp
        740                 745                 750

agg cct gca tcc ccc atc caa atc atg acg gtg tca aca tct gca gct   2543
Arg Pro Ala Ser Pro Ile Gln Ile Met Thr Val Ser Thr Ser Ala Ala
    755                 760                 765

ccc act gaa atc gct gtc tct cct gaa tct cag gaa gtg cct atg gga   2591
Pro Thr Glu Ile Ala Val Ser Pro Glu Ser Gln Glu Val Pro Met Gly
770                 775                 780                 785

agg act atc ctc aaa gtc acc ccg gaa aaa caa act gtt cca gcc ccc   2639
Arg Thr Ile Leu Lys Val Thr Pro Glu Lys Gln Thr Val Pro Ala Pro
                790                 795                 800

gtg cgg aag tac aac tcc aat gct aat atc atc acc acg gaa gac aat   2687
Val Arg Lys Tyr Asn Ser Asn Ala Asn Ile Ile Thr Thr Glu Asp Asn
            805                 810                 815

aaa att cac att cac ctg ggt tct cag ttt aag cga tct cct ggg cct   2735
Lys Ile His Ile His Leu Gly Ser Gln Phe Lys Arg Ser Pro Gly Pro
        820                 825                 830

gcc gct gaa ggc gtg agc cca gtt atc acc gtc cgg cct gtc aac gtg   2783
Ala Ala Glu Gly Val Ser Pro Val Ile Thr Val Arg Pro Val Asn Val
    835                 840                 845

aca gcg gag aag gag gtt tct aca ggc aca gtc ctt cgc tct ccc agg   2831
Thr Ala Glu Lys Glu Val Ser Thr Gly Thr Val Leu Arg Ser Pro Arg
850                 855                 860                 865

aac cac ctc tct tca aga ccc ggt gct agc aaa gtg acc agc act ata   2879
Asn His Leu Ser Ser Arg Pro Gly Ala Ser Lys Val Thr Ser Thr Ile
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act ata acc ccg gtc aca acg tca tcc aca cga gga acc caa tca gtg   2927
Thr Ile Thr Pro Val Thr Thr Ser Ser Thr Arg Gly Thr Gln Ser Val
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                885                 890                 895

tca gga caa gat ggg tca tct cag cgg cct acc ccc acc cgc att cct   2975
Ser Gly Gln Asp Gly Ser Ser Gln Arg Pro Thr Pro Thr Arg Ile Pro
        900                 905                 910

atg tca aaa ggt atg aaa gct gga aag cca gta gtg gca gcc tca gga   3023
Met Ser Lys Gly Met Lys Ala Gly Lys Pro Val Val Ala Ala Ser Gly
    915                 920                 925

gca gga aat ctg acc aaa ttc cag cct cga gct gag act cag tct atg   3071
Ala Gly Asn Leu Thr Lys Phe Gln Pro Arg Ala Glu Thr Gln Ser Met
930                 935                 940                 945

aaa ata gag ctg aag aaa tct gca gcc agc agc act gcc tct ctt gga   3119
Lys Ile Glu Leu Lys Lys Ser Ala Ala Ser Ser Thr Ala Ser Leu Gly
                950                 955                 960

ggg ggg aag ggc tgagggcagt ggctaagggg gtatgttgta aggatgctac       3171
Gly Gly Lys Gly
            965

tgctgcagtg gaaacaaacc ttcctctgtg ccaacccttt ccttgtacta ctaatttaag 3231

ttttaaatat cttgtttata aaataaccat ttaatagcca tgcacccccc tcccattttg 3291

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Leu Lys Leu Glu Val Asp Phe Glu His Lys Ala Ser Arg Phe Ser Gln
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Glu His Glu Glu Met Asn Ala Lys Leu Ala Asn Gln Glu Ser His Asn
65 70 75 80

Arg Gln Leu Arg Leu Lys Leu Val Gly Leu Ser Gln Arg Ile Glu Glu
85 90 95

Leu Glu Glu Thr Asn Lys Ser Leu Gln Lys Ala Glu Glu Glu Leu Gln
100 105 110

Glu Leu Arg Glu Lys Ile Ala Lys Gly Glu Cys Gly Asn Ser Ser Leu
115 120 125

Met Ala Glu Val Glu Ser Leu Arg Lys Arg Val Leu Glu Met Glu Gly
130 135 140

Lys Asp Glu Glu Ile Thr Lys Thr Glu Ala Gln Cys Arg Glu Leu Lys
145 150 155 160

Lys Lys Leu Gln Glu Glu Glu His His Ser Lys Glu Leu Arg Leu Glu
165 170 175

Val Glu Lys Leu Gln Lys Arg Met Ser Glu Leu Glu Lys Leu Glu Glu
180 185 190

Ala Phe Ser Arg Ser Lys Ser Glu Cys Thr Gln Leu His Leu Asn Leu

195 200 205

Glu Lys Glu Lys Asn Leu Thr Lys Asp Leu Leu Asn Glu Leu Glu Val
210 215 220

Val Lys Ser Arg Val Lys Glu Leu Glu Cys Ser Glu Ser Arg Leu Glu
225 230 235 240

Lys Ala Glu Leu Ser Leu Lys Asp Asp Leu Thr Lys Leu Lys Ser Phe
245 250 255

Thr Val Met Leu Val Asp Glu Arg Lys Asn Met Met Glu Lys Ile Lys
260 265 270

Gln Glu Glu Arg Lys Val Asp Gly Leu Asn Lys Asn Phe Lys Val Glu
275 280 285

Gln Gly Lys Val Met Asp Val Thr Glu Lys Leu Ile Glu Glu Ser Lys
290 295 300

Lys Leu Leu Lys Leu Lys Ser Glu Met Glu Glu Lys Glu Tyr Ser Leu
305 310 315 320

Thr Lys Glu Arg Asp Glu Leu Met Gly Lys Leu Arg Ser Glu Glu Glu
325 330 335

Arg Ser Cys Glu Leu Ser Cys Ser Val Asp Leu Leu Lys Lys Arg Leu
340 345 350

Asp Gly Ile Glu Glu Val Glu Arg Glu Ile Asn Arg Gly Arg Ser Cys
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Lys Gly Ser Glu Phe Thr Cys Pro Glu Asp Asn Lys Ile Arg Glu Leu
370 375 380

Thr Leu Glu Ile Glu Arg Leu Lys Lys Arg Leu Gln Gln Leu Glu Val
385 390 395 400

Val Glu Gly Asp Leu Met Lys Thr Glu Asp Glu Tyr Asp Gln Leu Glu
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Gln Lys Phe Arg Thr Glu Gln Asp Lys Ala Asn Phe Leu Ser Gln Gln
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Leu Glu Glu Ile Lys His Gln Met Ala Lys His Lys Ala Ile Glu Lys
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Gly Glu Ala Val Ser Gln Glu Ala Glu Leu Arg His Arg Phe Arg Leu
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Glu Glu Ala Lys Ser Arg Asp Leu Gln Ala Glu Val Gln Ala Leu Lys
465 470 475 480

Glu Lys Ile His Glu Leu Met Asn Lys Glu Asp Gln Leu Ser Gln Leu
485 490 495

Gln Val Asp Tyr Ser Val Leu Gln Gln Arg Phe Met Glu Glu Glu Thr
500 505 510

Lys Asn Lys Asn Met Gly Arg Glu Val Leu Asn Leu Thr Lys Glu Leu
515 520 525

Glu Leu Ser Lys Arg Tyr Ser Arg Ala Leu Arg Pro Ser Gly Asn Gly
530 535 540

Arg Arg Met Val Asp Val Pro Val Ala Ser Thr Gly Val Gln Thr Glu
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Ala Val Cys Gly Asp Ala Ala Glu Glu Glu Thr Pro Ala Val Phe Ile
565 570 575

Arg Lys Ser Phe Gln Glu Glu Asn His Ile Met Ser Asn Leu Arg Gln
580 585 590

Val Gly Leu Lys Lys Pro Met Glu Arg Ser Ser Val Leu Asp Arg Tyr
595 600 605

Pro Pro Ala Ala Asn Glu Leu Thr Met Arg Lys Ser Trp Ile Pro Trp
610 615 620

Met Arg Lys Arg Glu Asn Gly Pro Ser Thr Pro Gln Glu Lys Gly Pro
625 630 635 640

Arg Pro Asn Gln Gly Ala Gly His Pro Gly Glu Leu Val Leu Ala Pro
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Lys Gln Gly Gln Pro Leu His Ile Arg Val Thr Pro Asp His Glu Asn
660 665 670

Ser Thr Ala Thr Leu Glu Ile Thr Ser Pro Thr Ser Glu Glu Phe Phe
675 680 685

Ser Ser Thr Thr Val Ile Pro Thr Leu Gly Asn Gln Lys Pro Arg Ile
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Thr Ile Ile Pro Ser Pro Asn Val Met Ser Gln Lys Pro Lys Ser Ala
705 710 715 720

Asp Pro Thr Leu Gly Pro Glu Arg Ala Met Ser Pro Val Thr Ile Thr
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Asp Arg Pro Ala Ser Pro Ile Gln Ile Met Thr Val Ser Thr Ser Ala
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Ala Pro Thr Glu Ile Ala Val Ser Pro Glu Ser Gln Glu Val Pro Met
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Gly Arg Thr Ile Leu Lys Val Thr Pro Glu Lys Gln Thr Val Pro Ala
785 790 795 800

Pro Val Arg Lys Tyr Asn Ser Asn Ala Asn Ile Ile Thr Thr Glu Asp
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Asn Lys Ile His Ile His Leu Gly Ser Gln Phe Lys Arg Ser Pro Gly
820 825 830

Pro Ala Ala Glu Gly Val Ser Pro Val Ile Thr Val Arg Pro Val Asn
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Val Thr Ala Glu Lys Glu Val Ser Thr Gly Thr Val Leu Arg Ser Pro
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Arg Asn His Leu Ser Ser Arg Pro Gly Ala Ser Lys Val Thr Ser Thr
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Ile Thr Ile Thr Pro Val Thr Thr Ser Ser Thr Arg Gly Thr Gln Ser
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Val Ser Gly Gln Asp Gly Ser Ser Gln Arg Pro Thr Pro Thr Arg Ile

900 905 910

Pro Met Ser Lys Gly Met Lys Ala Gly Lys Pro Val Val Ala Ala Ser
915 920 925

Gly Ala Gly Asn Leu Thr Lys Phe Gln Pro Arg Ala Glu Thr Gln Ser
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His Ile Ser Cys Pro Lys Pro Ser Ile Ile Gly Asn Ala Gly Glu Lys
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agt ctc tca gaa gat gca aaa aag aag aag aaa tca aat agg aag gag 144
Ser Leu Ser Glu Asp Ala Lys Lys Lys Lys Lys Ser Asn Arg Lys Glu
35 40 45

gat gat gtc atg gcc tca gga act gtc aaa cga cac cta aaa aca tct 192
Asp Asp Val Met Ala Ser Gly Thr Val Lys Arg His Leu Lys Thr Ser
50 55 60

gga gaa tgt gaa cga aaa act aag aaa tcc ctg gag tta tcc aaa gaa 240
Gly Glu Cys Glu Arg Lys Thr Lys Lys Ser Leu Glu Leu Ser Lys Glu
65 70 75

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gac ctc atc caa cta ctc agt ata atg gaa ggg gag ttg cag gcc aga   288
Asp Leu Ile Gln Leu Leu Ser Ile Met Glu Gly Glu Leu Gln Ala Arg
     80                  85                  90

gaa gat gtg atc cac atg ctg aag aca gag aaa acc aag cct gag gtt   336
Glu Asp Val Ile His Met Leu Lys Thr Glu Lys Thr Lys Pro Glu Val
 95                 100                 105                 110

ctg gag gct cat tac ggg tct gcg gag cca gag aaa gtg ctg cgg gtc   384
Leu Glu Ala His Tyr Gly Ser Ala Glu Pro Glu Lys Val Leu Arg Val
                115                 120                 125

ctg cac cga gat gcc att ctt gcc cag gag aaa tcc ata gga gaa gat   432
Leu His Arg Asp Ala Ile Leu Ala Gln Glu Lys Ser Ile Gly Glu Asp
            130                 135                 140

gtc tat gag aaa ccg att tca gag ctg gac aga ctt gag gaa aaa cag   480
Val Tyr Glu Lys Pro Ile Ser Glu Leu Asp Arg Leu Glu Glu Lys Gln
        145                 150                 155

aaa gaa acc tac cgg cgc atg cta gag cag ctg ttg ctg gcc gag aag   528
Lys Glu Thr Tyr Arg Arg Met Leu Glu Gln Leu Leu Leu Ala Glu Lys
    160                 165                 170

tgt cat agg cgc acc gta tac gag tta gag aac gag aag cat aaa cac   576
Cys His Arg Arg Thr Val Tyr Glu Leu Glu Asn Glu Lys His Lys His
175                 180                 185                 190

act gac tac atg aac aag agc gac gac ttc acc aac ctg ctg gag cag   624
Thr Asp Tyr Met Asn Lys Ser Asp Asp Phe Thr Asn Leu Leu Glu Gln
                195                 200                 205

gag cgg gag agg tta aaa aag ctc ctt gaa caa gaa aag gct tat caa   672
Glu Arg Glu Arg Leu Lys Lys Leu Leu Glu Gln Glu Lys Ala Tyr Gln
            210                 215                 220

gcc cgc aaa gaa aag gaa aat gct aaa cga ctc aat aaa cta aga gat   720
Ala Arg Lys Glu Lys Glu Asn Ala Lys Arg Leu Asn Lys Leu Arg Asp
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gag ctt gtt aaa ctc aaa tcc ttt gca ctc atg ctg gtg gat gaa aga   768
Glu Leu Val Lys Leu Lys Ser Phe Ala Leu Met Leu Val Asp Glu Arg
    240                 245                 250
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caa atg cac att gaa caa ctt ggc ctg caa agc cag aaa gta cag gat   816
Gln Met His Ile Glu Gln Leu Gly Leu Gln Ser Gln Lys Val Gln Asp
255                 260                 265                 270

ctt act cag aag ctg agg gaa gaa gaa gag aag ctc aaa gcc att act   864
Leu Thr Gln Lys Leu Arg Glu Glu Glu Glu Lys Leu Lys Ala Ile Thr
                275                 280                 285

tcc aaa tcc aaa gaa gac aga cag aaa ttg ctc aag tta gaa gtg gac   912
Ser Lys Ser Lys Glu Asp Arg Gln Lys Leu Leu Lys Leu Glu Val Asp
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ttt gaa cac aag gct tcg agg ttt tct caa gag cat gaa gag atg aac   960
Phe Glu His Lys Ala Ser Arg Phe Ser Gln Glu His Glu Glu Met Asn
        305                 310                 315

gct aaa ctg gct aat caa gag tct cac aat agg caa ctt aga ctc aag  1008
Ala Lys Leu Ala Asn Gln Glu Ser His Asn Arg Gln Leu Arg Leu Lys
    320                 325                 330

ctg gtt ggc tta acc caa aga atc gag gag cta gaa gag acc aac aaa  1056
Leu Val Gly Leu Thr Gln Arg Ile Glu Glu Leu Glu Glu Thr Asn Lys
335                 340                 345                 350

aat ctg cag aag gca gag gaa gaa ctt caa gaa tta aga gat aaa att  1104
Asn Leu Gln Lys Ala Glu Glu Glu Leu Gln Glu Leu Arg Asp Lys Ile
                355                 360                 365

gcc aaa gga gaa tgt gga aac tct agc ctc atg gca gaa gtg gaa aat  1152
Ala Lys Gly Glu Cys Gly Asn Ser Ser Leu Met Ala Glu Val Glu Asn
            370                 375                 380

ctt cga aag cgt gtg ctt gaa atg gaa ggt aaa gat gag gag atc act  1200
Leu Arg Lys Arg Val Leu Glu Met Glu Gly Lys Asp Glu Glu Ile Thr
        385                 390                 395

aaa act gaa tcc cag tgt agg gaa ttg agg aag aag ctg caa gag gaa  1248
Lys Thr Glu Ser Gln Cys Arg Glu Leu Arg Lys Lys Leu Gln Glu Glu
    400                 405                 410

gaa cac cat agt aag gag ctc aga ctt gaa gtt gag aag cta cag aag  1296
Glu His His Ser Lys Glu Leu Arg Leu Glu Val Glu Lys Leu Gln Lys
415                 420                 425                 430
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aga atg tct gaa cta gag aaa ttg gaa gaa gca ttt agc aag agt aaa   1344
Arg Met Ser Glu Leu Glu Lys Leu Glu Glu Ala Phe Ser Lys Ser Lys
                435                 440                 445

tct gag tgc acc cag cta cat tta aat ctg gag aaa gaa aag aac tta   1392
Ser Glu Cys Thr Gln Leu His Leu Asn Leu Glu Lys Glu Lys Asn Leu
            450                 455                 460

acc aaa gac ctg cta aat gaa ttg gag gtg gtc aag agt cga gtt aaa   1440
Thr Lys Asp Leu Leu Asn Glu Leu Glu Val Val Lys Ser Arg Val Lys
        465                 470                 475

gaa ttg gaa tgt tct gaa agt aga ttg gaa aag gct gaa tta agc cta   1488
Glu Leu Glu Cys Ser Glu Ser Arg Leu Glu Lys Ala Glu Leu Ser Leu
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aaa gat gat ctt acc aag ttg aag tca ttt acc gtg atg ctg gtt gat   1536
Lys Asp Asp Leu Thr Lys Leu Lys Ser Phe Thr Val Met Leu Val Asp
495                 500                 505                 510

gaa agg aaa aat atg atg gaa aaa ata aaa caa gaa gag aga aaa gtg   1584
Glu Arg Lys Asn Met Met Glu Lys Ile Lys Gln Glu Glu Arg Lys Val
                515                 520                 525

gat gga ctc aat aaa aat ttt aag gtg gaa caa gga aaa gtt atg gat   1632
Asp Gly Leu Asn Lys Asn Phe Lys Val Glu Gln Gly Lys Val Met Asp
            530                 535                 540

gta act gaa aaa cta att gaa gaa agt aag aaa ctt tta aaa cta aaa   1680
Val Thr Glu Lys Leu Ile Glu Glu Ser Lys Lys Leu Leu Lys Leu Lys
        545                 550                 555

tct gaa atg gag gaa aaa gta tac aac ttg aca aga gaa aga gat gag   1728
Ser Glu Met Glu Glu Lys Val Tyr Asn Leu Thr Arg Glu Arg Asp Glu
    560                 565                 570

ttg ata ggc aaa ttg aaa agt gaa gaa gaa aaa tcc tct gaa tta agc   1776
Leu Ile Gly Lys Leu Lys Ser Glu Glu Glu Lys Ser Ser Glu Leu Ser
575                 580                 585                 590

tgc agt gtt gac tta cta aag aag aga ctt gat ggt ata gag gaa gtg   1824
Cys Ser Val Asp Leu Leu Lys Lys Arg Leu Asp Gly Ile Glu Glu Val
                595                 600                 605
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gaa aga gaa ata aca aga gga agg tca cga aaa ggg tct gag ctc acc   1872
Glu Arg Glu Ile Thr Arg Gly Arg Ser Arg Lys Gly Ser Glu Leu Thr
            610                 615                 620

tgc ccg gaa gat aat aag att aag gaa cta aca ctt gaa att gag aga   1920
Cys Pro Glu Asp Asn Lys Ile Lys Glu Leu Thr Leu Glu Ile Glu Arg
        625                 630                 635

ctg aag aaa cgt ctc caa caa ttg gaa gtg gtc gaa ggg gat ttg atg   1968
Leu Lys Lys Arg Leu Gln Gln Leu Glu Val Val Glu Gly Asp Leu Met
    640                 645                 650

aag aca gaa gat gag tat gat cag ctg gaa cag aaa ttt aga act gag   2016
Lys Thr Glu Asp Glu Tyr Asp Gln Leu Glu Gln Lys Phe Arg Thr Glu
655                 660                 665                 670

cag gat aag gct aac ttc ctc tct caa caa cta gag gag atc aag cac   2064
Gln Asp Lys Ala Asn Phe Leu Ser Gln Gln Leu Glu Glu Ile Lys His
                675                 680                 685

caa att gcc aag aat aaa gca ata gag aag ggt gag gtt gtg agc cag   2112
Gln Ile Ala Lys Asn Lys Ala Ile Glu Lys Gly Glu Val Val Ser Gln
            690                 695                 700

gaa gct gaa ctg aga cac aga ttt cgg ttg gaa gaa gct aaa agt cga   2160
Glu Ala Glu Leu Arg His Arg Phe Arg Leu Glu Glu Ala Lys Ser Arg
        705                 710                 715

gac tta aaa gcc gaa gta caa gct ctt aaa gag aag att cac gaa tta   2208
Asp Leu Lys Ala Glu Val Gln Ala Leu Lys Glu Lys Ile His Glu Leu
    720                 725                 730

atg aac aaa gaa gat cag ctt tct cag ctc cag gta gat tat tct gta   2256
Met Asn Lys Glu Asp Gln Leu Ser Gln Leu Gln Val Asp Tyr Ser Val
735                 740                 745                 750

ctt caa caa aga ttt atg gaa gaa gaa aat aag aac aaa aac atg ggg   2304
Leu Gln Gln Arg Phe Met Glu Glu Glu Asn Lys Asn Lys Asn Met Gly
                755                 760                 765

cag gag gtt ctc aat ctg acc aaa gag ttg gag ctt tcc aag cgc tac   2352
Gln Glu Val Leu Asn Leu Thr Lys Glu Leu Glu Leu Ser Lys Arg Tyr
            770                 775                 780
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agc aga gct ctt agg ccc agt gtg aat gga aga aga atg gtg gat gtt   2400
Ser Arg Ala Leu Arg Pro Ser Val Asn Gly Arg Arg Met Val Asp Val
        785                 790                 795

cct gtg acg tca act gga gtc caa act gat gca gtc agc ggt gaa gca   2448
Pro Val Thr Ser Thr Gly Val Gln Thr Asp Ala Val Ser Gly Glu Ala
    800                 805                 810

gca gag gaa gaa acg cca gct gta ttc ata cgg aaa tcc ttc cag gaa   2496
Ala Glu Glu Glu Thr Pro Ala Val Phe Ile Arg Lys Ser Phe Gln Glu
815                 820                 825                 830

gaa aat cat att atg agt aat ctt cgg cag gtg gga ttg aag aaa ccc   2544
Glu Asn His Ile Met Ser Asn Leu Arg Gln Val Gly Leu Lys Lys Pro
                835                 840                 845

gtg gaa aga tct tct gtt cta gac agg tat cct cca gca gca aat gag   2592
Val Glu Arg Ser Ser Val Leu Asp Arg Tyr Pro Pro Ala Ala Asn Glu
            850                 855                 860

ctc act atg aga aag tct tgg att cca tgg atg aga aag agg gaa aac   2640
Leu Thr Met Arg Lys Ser Trp Ile Pro Trp Met Arg Lys Arg Glu Asn
        865                 870                 875

ggc ccc tcc atc act cag gag aaa ggg ccc cga aca aat tcc agt cca   2688
Gly Pro Ser Ile Thr Gln Glu Lys Gly Pro Arg Thr Asn Ser Ser Pro
    880                 885                 890

ggg cac cca gga gag gta gtc ctt tca cca aag cag ggc cag ccc ctg   2736
Gly His Pro Gly Glu Val Val Leu Ser Pro Lys Gln Gly Gln Pro Leu
895                 900                 905                 910

cat att cga gtg aca cca gac cac gag aac agc act gcg act ttg gag   2784
His Ile Arg Val Thr Pro Asp His Glu Asn Ser Thr Ala Thr Leu Glu
                915                 920                 925

ata aca agc ccg aca tct gaa gaa ttt ttt tct agt acc act gtc att   2832
Ile Thr Ser Pro Thr Ser Glu Glu Phe Phe Ser Ser Thr Thr Val Ile
            930                 935                 940

cct acc tta ggg aat cag aaa cca aga ata acc att att cca tca cca   2880
Pro Thr Leu Gly Asn Gln Lys Pro Arg Ile Thr Ile Ile Pro Ser Pro
        945                 950                 955
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aac gtt atg cct caa aaa caa aaa agt gga gat act act ctt ggc cca   2928
Asn Val Met Pro Gln Lys Gln Lys Ser Gly Asp Thr Thr Leu Gly Pro
    960                 965                 970

gaa cga gcc atg tcc cca gtc aca att act aca ttt tcc aga gag aag   2976
Glu Arg Ala Met Ser Pro Val Thr Ile Thr Thr Phe Ser Arg Glu Lys
975                 980                 985                 990

act cca gaa agt gga aga ggc gca ttt gca gac agg ccc aca tcc cct   3024
Thr Pro Glu Ser Gly Arg Gly Ala Phe Ala Asp Arg Pro Thr Ser Pro
                995                1000                1005

att cag ata atg acg gtg tct aca tca gca gca cca gct gag att gca   3072
Ile Gln Ile Met Thr Val Ser Thr Ser Ala Ala Pro Ala Glu Ile Ala
           1010                1015                1020

gtt tct ccc gaa tcc cag gaa atg ccc atg gga cgg aca atc ctc aaa   3120
Val Ser Pro Glu Ser Gln Glu Met Pro Met Gly Arg Thr Ile Leu Lys
       1025                1030                1035

gtc acc cca gaa aaa cag act gtt cca act cca gta cgg aaa tac aac   3168
Val Thr Pro Glu Lys Gln Thr Val Pro Thr Pro Val Arg Lys Tyr Asn
   1040                1045                1050

tcc aat gcc aat atc ata acc aca gag gac aat aaa att cac att cac   3216
Ser Asn Ala Asn Ile Ile Thr Thr Glu Asp Asn Lys Ile His Ile His
1055                1060                1065                1070

tta ggg tct cag ttt aaa cgg tcc cct ggg act tca ggt gaa gga gtc   3264
Leu Gly Ser Gln Phe Lys Arg Ser Pro Gly Thr Ser Gly Glu Gly Val
               1075                1080                1085

agt cca gtt att act gtc cga cca gta aac gtg aca gcc gaa aag gag   3312
Ser Pro Val Ile Thr Val Arg Pro Val Asn Val Thr Ala Glu Lys Glu
           1090                1095                1100

gtt tcc acc ggc act gtc ctt cgc tct ccc agg aat cac ctc tcc tca   3360
Val Ser Thr Gly Thr Val Leu Arg Ser Pro Arg Asn His Leu Ser Ser
       1105                1110                1115

cgg cct ggt gca agc aaa gtg acg agc act atc acc ata aca ccg gtc   3408
Arg Pro Gly Ala Ser Lys Val Thr Ser Thr Ile Thr Ile Thr Pro Val
   1120                1125                1130
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aca acg tca tct gct cga gga acc cag tca gtg tca gga caa gac ggg 3456
Thr Thr Ser Ser Ala Arg Gly Thr Gln Ser Val Ser Gly Gln Asp Gly
1135 1140 1145 1150

tca tcc cag cgg cct aca ccc acc cgc att cct atg tca aaa ggt atg 3504
Ser Ser Gln Arg Pro Thr Pro Thr Arg Ile Pro Met Ser Lys Gly Met
1155 1160 1165

aaa gca gga aag cca gta gtg gca gcc cca gga gca gga aat ctg acc 3552
Lys Ala Gly Lys Pro Val Val Ala Ala Pro Gly Ala Gly Asn Leu Thr
1170 1175 1180

aaa ttc gag cct cga gct gag act cag tct atg aaa ata gag ctg aag 3600
Lys Phe Glu Pro Arg Ala Glu Thr Gln Ser Met Lys Ile Glu Leu Lys
1185 1190 1195

aaa tct gca gcc agc agc acc acc tct ctc gga ggg ggg aag ggc 3645
Lys Ser Ala Ala Ser Ser Thr Thr Ser Leu Gly Gly Gly Lys Gly
1200 1205 1210

tgagggcagt ggctaagggg gtatgttgtg cagatgctac tgctgccgtg aaagtgaacc 3705

ttcatctgtt tgtgccagtt ctttacatgt actaatttaa gttttaaata ttgtgtttat 3765

aaaataacca actaataacc atttgtcttt cccattttgt gcatttgttt tgatgctggg 3825

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gg 4247

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<212> PRT
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			20				25				30				

Ser	Glu	Asp	Ala	Lys	Lys	Lys	Lys	Lys	Ser	Asn	Arg	Lys	Glu	Asp	Asp
		35					40				45				

Val	Met	Ala	Ser	Gly	Thr	Val	Lys	Arg	His	Leu	Lys	Thr	Ser	Gly	Glu
	50					55					60				

Cys	Glu	Arg	Lys	Thr	Lys	Lys	Ser	Leu	Glu	Leu	Ser	Lys	Glu	Asp	Leu
65					70					75					80

Ile	Gln	Leu	Leu	Ser	Ile	Met	Glu	Gly	Glu	Leu	Gln	Ala	Arg	Glu	Asp
				85					90					95	

Val	Ile	His	Met	Leu	Lys	Thr	Glu	Lys	Thr	Lys	Pro	Glu	Val	Leu	Glu
			100					105					110		

Ala	His	Tyr	Gly	Ser	Ala	Glu	Pro	Glu	Lys	Val	Leu	Arg	Val	Leu	His
		115					120					125			

Arg	Asp	Ala	Ile	Leu	Ala	Gln	Glu	Lys	Ser	Ile	Gly	Glu	Asp	Val	Tyr
	130					135					140				

Glu	Lys	Pro	Ile	Ser	Glu	Leu	Asp	Arg	Leu	Glu	Glu	Lys	Gln	Lys	Glu
145					150					155					160

Thr	Tyr	Arg	Arg	Met	Leu	Glu	Gln	Leu	Leu	Leu	Ala	Glu	Lys	Cys	His
				165					170					175	

Arg	Arg	Thr	Val	Tyr	Glu	Leu	Glu	Asn	Glu	Lys	His	Lys	His	Thr	Asp
			180					185					190		

Tyr	Met	Asn	Lys	Ser	Asp	Asp	Phe	Thr	Asn	Leu	Leu	Glu	Gln	Glu	Arg
		195					200					205			

Glu Arg Leu Lys Lys Leu Leu Glu Gln Glu Lys Ala Tyr Gln Ala Arg
210 215 220

Lys Glu Lys Glu Asn Ala Lys Arg Leu Asn Lys Leu Arg Asp Glu Leu
225 230 235 240

Val Lys Leu Lys Ser Phe Ala Leu Met Leu Val Asp Glu Arg Gln Met
245 250 255

His Ile Glu Gln Leu Gly Leu Gln Ser Gln Lys Val Gln Asp Leu Thr
260 265 270

Gln Lys Leu Arg Glu Glu Glu Glu Lys Leu Lys Ala Ile Thr Ser Lys
275 280 285

Ser Lys Glu Asp Arg Gln Lys Leu Leu Lys Leu Glu Val Asp Phe Glu
290 295 300

His Lys Ala Ser Arg Phe Ser Gln Glu His Glu Glu Met Asn Ala Lys
305 310 315 320

Leu Ala Asn Gln Glu Ser His Asn Arg Gln Leu Arg Leu Lys Leu Val
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Gly Leu Thr Gln Arg Ile Glu Glu Leu Glu Glu Thr Asn Lys Asn Leu
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Gln Lys Ala Glu Glu Glu Leu Gln Glu Leu Arg Asp Lys Ile Ala Lys
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Gly Glu Cys Gly Asn Ser Ser Leu Met Ala Glu Val Glu Asn Leu Arg
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Lys Arg Val Leu Glu Met Glu Gly Lys Asp Glu Glu Ile Thr Lys Thr
385 390 395 400

Glu Ser Gln Cys Arg Glu Leu Arg Lys Lys Leu Gln Glu Glu Glu His
405 410 415

His Ser Lys Glu Leu Arg Leu Glu Val Glu Lys Leu Gln Lys Arg Met
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Ser Glu Leu Glu Lys Leu Glu Glu Ala Phe Ser Lys Ser Lys Ser Glu
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Cys Thr Gln Leu His Leu Asn Leu Glu Lys Glu Lys Asn Leu Thr Lys
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Asp Leu Leu Asn Glu Leu Glu Val Val Lys Ser Arg Val Lys Glu Leu
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Glu Cys Ser Glu Ser Arg Leu Glu Lys Ala Glu Leu Ser Leu Lys Asp
485 490 495

Asp Leu Thr Lys Leu Lys Ser Phe Thr Val Met Leu Val Asp Glu Arg
500 505 510

Lys Asn Met Met Glu Lys Ile Lys Gln Glu Glu Arg Lys Val Asp Gly
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Leu Asn Lys Asn Phe Lys Val Glu Gln Gly Lys Val Met Asp Val Thr
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Glu Lys Leu Ile Glu Glu Ser Lys Lys Leu Leu Lys Leu Lys Ser Glu
545 550 555 560

Met Glu Glu Lys Val Tyr Asn Leu Thr Arg Glu Arg Asp Glu Leu Ile
565 570 575

Gly Lys Leu Lys Ser Glu Glu Glu Lys Ser Ser Glu Leu Ser Cys Ser
580 585 590

Val Asp Leu Leu Lys Lys Arg Leu Asp Gly Ile Glu Glu Val Glu Arg
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Glu Ile Thr Arg Gly Arg Ser Arg Lys Gly Ser Glu Leu Thr Cys Pro
610 615 620

Glu Asp Asn Lys Ile Lys Glu Leu Thr Leu Glu Ile Glu Arg Leu Lys
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Lys Arg Leu Gln Gln Leu Glu Val Val Glu Gly Asp Leu Met Lys Thr
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Glu Asp Glu Tyr Asp Gln Leu Glu Gln Lys Phe Arg Thr Glu Gln Asp
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Lys Ala Asn Phe Leu Ser Gln Gln Leu Glu Glu Ile Lys His Gln Ile

675 680 685

Ala Lys Asn Lys Ala Ile Glu Lys Gly Glu Val Val Ser Gln Glu Ala
690 695 700

Glu Leu Arg His Arg Phe Arg Leu Glu Glu Ala Lys Ser Arg Asp Leu
705 710 715 720

Lys Ala Glu Val Gln Ala Leu Lys Glu Lys Ile His Glu Leu Met Asn
725 730 735

Lys Glu Asp Gln Leu Ser Gln Leu Gln Val Asp Tyr Ser Val Leu Gln
740 745 750

Gln Arg Phe Met Glu Glu Glu Asn Lys Asn Lys Asn Met Gly Gln Glu
755 760 765

Val Leu Asn Leu Thr Lys Glu Leu Glu Leu Ser Lys Arg Tyr Ser Arg
770 775 780

Ala Leu Arg Pro Ser Val Asn Gly Arg Arg Met Val Asp Val Pro Val
785 790 795 800

Thr Ser Thr Gly Val Gln Thr Asp Ala Val Ser Gly Glu Ala Ala Glu
805 810 815

Glu Glu Thr Pro Ala Val Phe Ile Arg Lys Ser Phe Gln Glu Glu Asn
820 825 830

His Ile Met Ser Asn Leu Arg Gln Val Gly Leu Lys Lys Pro Val Glu
835 840 845

Arg Ser Ser Val Leu Asp Arg Tyr Pro Pro Ala Ala Asn Glu Leu Thr
850 855 860

Met Arg Lys Ser Trp Ile Pro Trp Met Arg Lys Arg Glu Asn Gly Pro
865 870 875 880

Ser Ile Thr Gln Glu Lys Gly Pro Arg Thr Asn Ser Ser Pro Gly His
885 890 895

Pro Gly Glu Val Val Leu Ser Pro Lys Gln Gly Gln Pro Leu His Ile
900 905 910

Arg Val Thr Pro Asp His Glu Asn Ser Thr Ala Thr Leu Glu Ile Thr
915 920 925

Ser Pro Thr Ser Glu Glu Phe Phe Ser Ser Thr Thr Val Ile Pro Thr
930 935 940

Leu Gly Asn Gln Lys Pro Arg Ile Thr Ile Ile Pro Ser Pro Asn Val
945 950 955 960

Met Pro Gln Lys Gln Lys Ser Gly Asp Thr Thr Leu Gly Pro Glu Arg
965 970 975

Ala Met Ser Pro Val Thr Ile Thr Thr Phe Ser Arg Glu Lys Thr Pro
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Glu Ser Gly Arg Gly Ala Phe Ala Asp Arg Pro Thr Ser Pro Ile Gln
995 1000 1005

Ile Met Thr Val Ser Thr Ser Ala Ala Pro Ala Glu Ile Ala Val Ser
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Pro Glu Ser Gln Glu Met Pro Met Gly Arg Thr Ile Leu Lys Val Thr
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Pro Glu Lys Gln Thr Val Pro Thr Pro Val Arg Lys Tyr Asn Ser Asn
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Ala Asn Ile Ile Thr Thr Glu Asp Asn Lys Ile His Ile His Leu Gly
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